

DPD 0153/61

6 January 1961

MEMORANDUM FOR: Acting Chief, DPD

SUBJECT : Suitable Aircraft for [REDACTED]

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1. This memorandum contains a recommendation for the approval of the Acting Chief, DPD. Such recommendation is contained in paragraph 7.

2. The subject of obtaining a suitable aircraft for [REDACTED] is one of long standing. At the present time investigation into the feasibility and/or availability of three different aircraft are in progress. These are:

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a. Whether or not some acceptable means can be found to make the C-130 aircraft available. In this regard it is understood that the proposal that the Agency purchase a C-130B is definitely out. The reasons for this decision are that the [REDACTED]

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b. During the month of December 1960 the feasibility of using the DC-7C was investigated. This investigation revealed that through Riddle Aircraft a DC-7C, modified for cargo and using the

inflight opening door previously designed for the C-118, could be made available. A profile mission was flown in late December. The conclusion reached from this profile mission was that the aircraft was a marginal capability and as such should not be considered for indefinite use for [redacted] missions. The opinion of the [redacted] crew flying the profile mission weighed heavily in the decision not to use the DC-7C. Controversy of opinion regarding the performance capability of the DC-7C still prevails. The controversy mainly centers around the high failure rate of the engine installation of the DC-7C when operated for long periods in high blower. As a test of engine out performance, during the profile flight number one engine was feathered at an altitude of 15,000 feet. The aircraft was then climbed to 25,000 feet in a period of thirty minutes giving an average rate of climb 330 feet per minute. Initial rate of climb was in the neighborhood of 700 feet per minute. No difficulty was experienced in maintaining level flight at 25,000 feet on three engines although it should be pointed out that this required relatively high power settings on the operating engines. [redacted] reported that the crew had reported to him that in their opinion the aircraft attitude at drop speed was so nose high that they felt the bundles would strike the tail during an actual drop. Although it is my personal opinion that it would be practically impossible to hit the tail under normal drop attitudes and air speeds, test drops with this aircraft at various flap settings should be made to resolve this point. Such tests should incorporate the stationary mounting of a movie camera to photographically record the results. Since the drop tests will require a flight anyway, another long range profile should be flown so as to more accurately record the performance of this aircraft under simulated mission conditions. A precise preflight prediction of altitudes, times, fuel consumption, etc., as well as simulated emergency conditions should be included. In this way the post-mission results can be matched against the prediction and the reasons for variations in performance can then be made using the detailed recorded data of actual inflight performance.

c. The third aircraft being investigated is the Lockheed Constellation (Jet Stream Version), numerically designated the 1649. This aircraft is a relative competitor to the DC-7C and uses the same basic engine. However, Lockheed engineers feel the ducting installation in the 1649 is superior to that of the DC-7C and, in their opinion, will out-perform the DC-7C in terms of both engine

25X1A failure rate and altitude capability. An informal check with FAA
25X1A bears out the fact that the engine failure rate of the 1649 is lower
than that of the DC-7C. A sample profile has been given to [REDACTED]
engineers who have calculated that the 1649 will easily perform the
profile for [REDACTED] missions. As an example, they calculated
that if one engine failed at an altitude of 15,000 feet and at an air
speed of 130 or 140 knots, a climb to 28,000 feet on three engines
can be made. It is planned that a profile mission identical to that
flown in the DC-7C be flown on 14 and 15 January. The purpose of
this profile is to ascertain the true capability of the 1649 as well as
to make a comparison between its capability and that of the DC-7C.

25X1A 3. Although there is no dispute as to the desirability of using the
C-130 from a performance standpoint, because of the continuing difficulty
over deniability and/or control, it is imperative that a common commercial
aircraft, such as the DC-7C and 1649, be conclusively accepted or rejected
in order that the technical feasibility of continuing [REDACTED] air resupply
can be correctly transmitted to the Far East Division.

25X1A 4. Points to be considered in judging the acceptability of aircraft
for operations in the terrain of [REDACTED] are factors such as being more
restrictive in our selection of drop zones so as to provide more favorable
terrain in the event of engine failure at a critical time as well as the
dumping of fuel and/or cargo. Another recognized limitation of the DC-7C
and the 1649 is the less sophisticated navigational radar equipment installed
as compared to that of the C-130. This may also introduce limiting
factors of enroute weather due to the generally poor mapping of that area.

5. A closer look into the comparative engine failure rates of the
DC-7C and 1649 should be accomplished. This should be obtained from
the FAA for use as statistical data in deciding between the DC-7C and
1649 should the choice come down to that.

25X1A 6. A point of information which has bearing on the situation concerns
25X1A an inflight opening door for the 1649. If, for example, the decision is
made that the 1649 is acceptable and should be used for [REDACTED]
[REDACTED] engineers have estimated that it will take approximately four
months to design, fabricate, and test an inflight opening door.

7. It is therefore recommended that our immediate course of action be as follows:

- a. That a repeat profile be flown on the DC-7C.
- b. That an identical profile mission to that flown on the DC-7C be flown in the 1649.
- c. That drop tests be conducted in the DC-7C to determine tail clearance in drop attitude. Such tests to be photographically recorded.
- d. That exact statistical data of engine failure rates of the DC-7C and 1649 be obtained from FAA.
- e. That continuing efforts be made to arrange for the use of C-130 type aircraft for [REDACTED]

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8. If the above recommended course of action is approved, a final recommendation regarding the feasibility of either or both the DC-7C and 1649 will be made following compilation of the results of the tests proposed. Please indicate your concurrence and/or reservations.

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[REDACTED]
Chief, Operations Branch, DPD-DD/P

The recommendations contained in paragraph 7 are approved:

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[REDACTED]
Acting Chief, DPD-DD/P

cc: Asst Chief, DPD
Chief, FE Div
DB/DPD
FIN/DPD
AS/DPD
REQ/DPD

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